Air Quality Permitting
Statement of Basis

July 8, 2005

Permit to Construct No. P-050312

Nu-West Industries, Inc.
d.b.a Agrium Conda Phosphate Operations
Soda Springs, ID

Facility ID No. 029-00003

Prepared by:

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TECHNICAL SERVICES DIVISION

Final

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Acronyms, Units, and Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
Btu	British thermal unit
CAA	Clean Air Act
CFR	Code of Federal Regulations
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EPA	U.S. Environmental Protection Agency
F	fluoride
gpm	gallons per minute
gr	grain (1 lb = 7,000 grains)
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
m	meter(s)
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
NSR	new source review
O_3	ozone
P_2O_5	phosphoric acid
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
SPA	superphosphoric acid
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

Nu-West Industries, Inc., d.b.a. Agrium Conda Phosphate Operations (CPO) produces phosphate-based fertilizer products at its facility located near Soda Springs, Idaho.

The facility's primary product is a liquid fertilizer product called superphosphoric acid (SPA). SPA is produced by concentrating phosphoric acid to a level of 68-72% P_2O_5. SPA accounts for approximately 50% of the facility's total production volume. SPA is sold to customers where it is then upgraded, mixed or blended with other nutrients, pesticides and or herbicides before it is applied. Other products produced at the facility include Merchant Grade Acid, Dilute Phosphoric Acid, Purified Phosphoric Acid and Dry Granular Products.

Sulfuric acid is used in the process and is either manufactured at the Conda plant or purchased from third party sources. Approximately 50% of the sulfuric acid utilized at the Agrium Conda Phosphate Plant is currently manufactured by Agrium at the East Sulfuric Acid Plant using a double contact absorption process that burns elemental sulfur.

3. FACILITY / AREA CLASSIFICATION

Nu-West Industries, Agrium Conda Phosphate Operations is defined as a major facility in accordance with IDAPA 58.01.01.008.10 Rules for the Control of Air Pollution in Idaho (Rules) because the facility has a PTE for PM_{10}, SO_2, CO and NO_x of over 100 T/yr for each pollutant. Nu-West is defined as a designated facility in accordance with IDAPA 58.01.01.006.27 (sulfuric acid plant). The AIRS classification is "A" because the facility has the PTE of over 100 T/yr of a regulated air pollutant. The SIC code for this facility is 2874 which is defined as a phosphate fertilizer production plant.

The CPO facility is located within AQCR 61 and Universal Transverse Mercator Zone 12. The facility is located in Caribou County, which is designated as attainment or unclassifiable for all criteria air pollutants (i.e. SO_2, NO_x, CO, PM_{10}, and lead).

No changes to the AIRS database are needed as a result of this PTC.

4. APPLICATION SCOPE

The PTC application is for the construction of a new 125-acre gyp stack in the northwest corner of the facility that will be referred to as the "west gyp stack". As defined by 40 CFR 61 Subpart R, *phosphogypsum stacks* or *gyp stacks* are piles of waste resulting from wet acid phosphorus production, including phosphate mines or other sites that are used for the disposal of phosphogypsum.

At the CPO processing plant, phosphate rock ore is mixed with water, sulfuric acid, and recycle acid in a series of reactors and digesters. A chemical reaction takes place, forming a slurry of phosphoric acid (approximately 30% P_2O_5) and crystals of calcium sulfate (known as phosphogypsum). The slurry is fed to a combination of two belt filters and a circular pan filter, where the 30% acid is separated from the phosphogypsum. The acid is pumped to additional processing steps and the phosphogypsum is slurried by pipeline to an impoundment, commonly referred to as a "gyp stack." The slurry contains approximately 20% solids.

4.1 Application Chronology

May 2, 2005	DEQ received application; application requested that DEQ hold a public hearing related to the PTC for the west gyp stack
May 10, 2005	DEQ issued application completeness letter
May 26, 2005	DEQ received application addendum to include contemporaneous emissions increase from superphosphoric acid plant in netting analysis
June 2, 2005	Public comment period started
June 23, 2005	Public hearing held at Soda Springs City Hall Council chambers, 6 p.m. No members of the public attended.
July 5, 2005	Public comment period ended. No comments were received during the comment period.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

The emission source that is being permitted is a new 125-acre gyp stack. Gyp produced in the phosphoric acid production process will continue to be slurried from the plant to the new gyp impoundment via closed pipeline. The slurry will still be approximately 20% solids. However, management of phosphogypsum in the new gyp stack will differ from the current method. At the new gyp stack, solids in the gyp will be allowed to settle in small partitions, or cells, around the perimeter of the working stack, and the water will be decanted to the middle of the stack. After a second settling time, the process water will be routed to the same evaporative cooling pond as with the existing gyp stack arrangement. The process water will be recycled to the processing plant, as it is with the current gyp stack.

New Phosphogypsum Management

The new operating method will reduce equipment needs to:

- Two 30-ton backhoes
- One 40-ton dozer
- One 17-ton motor grader
- One 35-ton compactor

The backhoes will be used to empty the drying cells by lifting wet gypsum and placing it on the dike and on the far side of each cell. A bulldozer and compactor will work a 300-foot section for a portion of each weekday to elevate the dikes, typically making 10 passes per 300-foot section. The motor grader will make approximately two passes around the perimeter of the new gyp stack per week.

The gyp excavated from the drying cells will again be approximately 40% moisture. However, this moist gyp will be placed directly onto the dike surface. This approach eliminates the current practice of drying gyp in rows and transporting the dried gyp with scrapers. Total traffic is expected to be reduced to about 3,500 vehicle miles traveled (VMT), most of which is daily checks in light-duty trucks by maintenance personnel.

At the gyp stack, solids in the slurry are allowed to settle and the water is decanted to an evaporative cooling pond. The process water is recycled to the processing plant. The settled gypsum is allowed to dry to a moisture content of about 40% and then a portion is excavated to build the exterior dikes of the stack in elevation. When the interior is excavated and the dikes are elevated to the necessary height, the process is repeated. A gyp,stack becomes unusable when the surface area no longer supports proper drying of the gyp for repeated dike construction or when a permitted height limit is reached.

Current Phosphogypsum Management

Excavation and construction practices for the current gyp stack require:

- Six 40-ton paddle-wheel belly scrapers
- One 40-ton dozer
- One 17-ton motor grader
- One 35-ton compactor

Several 3-ton trucks are also utilized on a daily basis for approximately 120 days construction time. The process of excavation involves pushing deep furrows through the gyp and piling the gyp in rows to further drying. Next, the scrapers pick up the gyp and transport the gyp from the interior to the outer dikes. The motor grader spreads the gypsum and the compactor sets the loose gyp to a near-concrete compaction. The newly constructed dike serves as a driving surface until the next construction cycle. Vehicle miles traveled totals more than 70,000 VMT during a single construction season.

5.2 Emissions Inventory

Operations at the new gyp stack will generate emissions of fluoride, PM, and PM_{10}. The new facility is not expected to affect production at the rest of the plant in any manner and, according to CPO's application, no other production or emission units will be modified as a result of the gyp stack project. Emissions from the gyp stack consist of fugitive particulate matter generated from gyp stack construction and material handling activities and fluoride from the wetted surface of the gyp stack. A summary of expected emissions changes resulting from the gyp stack is included in Table 5.1.

Table 5.1 GYP STACK EMISSIONS

Pollutant	West gyp stack emissions[1]	Significant[3] Threshold	Significant increase?	Contemporaneous emissions changes	Net emissions increase[1]	Major modification?
PM	3.1 T/yr	25 T/yr	No	NA[2]	NA	No
PM_{10}	0.7 T/yr	15 T/yr	No	NA[2]	NA	No
F	36.5 T/yr	3 T/yr	Yes	-35.85 T/yr	0.7	No

[1] See detailed emission estimate methodology and calculations in Appendix B

[2] Not applicable. Because the emissions increase from the project is less than significant, a review of contemporaneous emissions changes is not required.

[3] IDAPA 58.01.01.006.90

AP-42 emission factors were used to estimate emission rates of PM and PM_{10} attributable to the material handling operations. Emission equations and assumptions used by Agrium were reviewed by DEQ and are included in Appendix B.

Fluoride emissions were estimated by Agrium using an emission factor of 1.0 lb/acre/day from the wetted surface of the gyp stack.

$$1\frac{lb\,F}{acre/day} \times 125\,acres \times \frac{365\,days}{year} \times \frac{1\,Ton}{2000\,lb} \cong 22.8\,Tons\,F/year$$

The emission factor used by J. R. Simplot Company's facility in Pocatello, Idaho to determine compliance with the fluoride emissions limits on their gyp stack is 1.6 lb/acre/day. J.R. Simplot Company's current Tier I operating permit references their June 29, 2000 Tier I/II application, Appendix D, to demonstrate compliance with the gyp stack fluoride emissions limit. Appendix D of the application contains a 1.6 lb/acre/day fluoride emission factor for the gypsum stack pond (Source ID 1701). A copy of the fluoride emission estimate from Simplot's June 29, 2000 Tier I/II permit application for the gypsum stack pond is included in appendix B. DEQ is using the 1.6 lb/acre/day emission factor to estimate emissions from CPO's gyp stack as well to maintain consistency between the phosphate fertilizer facilities in Idaho.

$$1.6\frac{lb\,F}{acre/day}\times 125\,acres\times\frac{365\,days}{year}\times\frac{1\,Ton}{2000\,lb}\cong 36.5\,Tons\,F/year$$

Because the west gyp stack is estimated to have a significant emissions increase of fluoride emissions, the contemporaneous emissions changes at the CPO facility were reviewed to determine the net emissions increase. CPO installed additional wet scrubbers on the phosphoric acid manufacturing process in 2001 to comply with MACT standards. The definition of *net emissions increase* from 40 CFR 52.21 is included below for reference.

> (3)(i) *Net emissions increase* means, with respect to any regulated NSR pollutant emitted by a major stationary source, the amount by which the sum of the following exceeds zero:
>
> (*a*) The increase in emissions from a particular physical change or change in the method of operation at a stationary source as calculated pursuant to paragraph (a)(2)(iv) of this section; and
>
> (*b*) Any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the particular change and are otherwise creditable. Baseline actual emissions for calculating increases and decreases under this paragraph (b)(3)(i)(*b*) shall be determined as provided in paragraph (b)(48) of this section, except that paragraphs (b)(48)(i)(*c*) and (b)(48)(ii)(*d*) of this section shall not apply.
>
> (ii) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between:
>
> (*a*) The date five years before construction on the particular change commences; and
>
> (*b*) The date that the increase from the particular change occurs.
>
> (iii) An increase or decrease in actual emissions is creditable only if:
>
> (*a*) The Administrator or other reviewing authority has not relied on it in issuing a permit for the source under this section, which permit is in effect when the increase in actual emissions from the particular change occurs; and
>
> (*b*) The increase or decrease in emissions did not occur at a Clean Unit except as provided in paragraphs (x)(8) and (y)(10) of this section.
>
> (iv) An increase or decrease in actual emissions of sulfur dioxide, particulate matter, or nitrogen oxides that occurs before the applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.
>
> (v) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.
>
> (vi) A decrease in actual emissions is creditable only to the extent that:
>
> (*a*) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(*b*) It is enforceable as a practical matter at and after the time that actual construction on the particular change begins.

(*c*) It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change; and

(*d*) The decrease in actual emissions did not result from the installation of add-on control technology or application of pollution prevention practices that were relied on in designating an emissions unit as a Clean Unit under paragraph (y) of this section or under regulations approved pursuant to §51.165(d) or to §51.166(u) of this chapter. That is, once an emissions unit has been designated as a Clean Unit, the owner or operator cannot later use the emissions reduction from the air pollution control measures that the designation is based on in calculating the net emissions increase for another emissions unit (*i.e.*, must not use that reduction in a "netting analysis" for another emissions unit). However, any new emission reductions that were not relied upon in a PCP excluded pursuant to paragraph (z) of this section or for a Clean Unit designation are creditable to the extent they meet the requirements in paragraph (z)(6)(iv) of this section for the PCP and paragraphs (x)(8) or (y)(10) of this section for a Clean Unit.

In order for the decrease in actual emissions to be enforceable as a practicable matter as required by 40 CFR 52.21(3)(vi)(b), an annual P_2O_5 production limit for the phosphoric acid plant will be included in the PTC. The MACT standard (0.0135 lb-F/T P_2O_5) in conjunction with an annual P_2O_5 production limit of 560,000 T/yr will make the annual fluoride emissions reduction enforceable. Calculations for the contemporaneous fluoride emissions changes are provided in appendix B and a summary of emissions changes is included in Table 5.2. Only those emissions decreases that are creditable were included in the netting analysis. There are some other small decreases that CPO could take credit for if the decreases were made enforceable, such as approximately 0.1 T/yr decrease from the dry fertilizer loadout as reported in Appendix B, but since they were not needed in the netting analysis they were not made enforceable and are given 0 creditable emissions change in Table 5.2. The net emissions increase for the project as determined by DEQ is an increase of less than one ton per year fluoride emissions which makes the west gyp stack project a minor modification to a major source because the increase is less than the 3 T/yr significant threshold for fluoride emissions.

Table 5.2 CONTEMPORANEOUS FLUORIDE EMISSIONS CHANGES

Source	Baseline actual emissions[1] (T/yr)	Current emissions (T/yr)	Creditable Emissions Changes[4] (T/yr)	West gyp stack baseline actual emissions (T/yr)	West gyp stack potential emissions (T/yr)	Net fluoride emissions increase (T/yr)
Calciner No. 4[3]	2.1	0	-2.1			
Rock Dryer	0	0	0			
Granulation Plant	3.88	3.88	0			
Dry Fertilizer Loadout	0.35	0.35	0			
Superphosphoric Acid[5]	0.3	2.2	1.9			
Phosphoric acid plant[2]	39.5	3.8	-35.7			
Dry Product Sizing Screens	0.35	0.35	0			
Sulfiding Vent Scrubber	0	0.02	0.02			
Conditioning Vent Scrubber	0	0.03	0.03			
TOTAL	**46.48**	**10.63**	**-35.85**	**0**	**36.5 T/yr**	**0.7**

[1] For an existing emissions unit (other than an electric utility steam generating unit), baseline actual emissions means the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 10-year period immediately preceding either the date the owner or operator begins actual construction of the project, or the date a complete permit application is received by the Administrator for a permit required under this section or by the reviewing authority for a permit required by a plan, whichever is earlier, except that the 10-year period shall not include any period earlier than November 15, 1990. (40 CFR 52.21(b)(48)(ii))

[2] Phosphoric acid plant current allowable emissions determined from MACT standard (0.0135 lb-F/T P_2O_5) times new allowable production limit (560,000 T P_2O_5/yr). The 560,000 T/yr throughput for the phosphoric acid plant was used in the Sustaining/Expansion project analysis (PTC No. 029-00003, July 12, 2000)

[3] Calciner No. 4 was permanently closed and removed from the Tier I operating permit.

[4] Only the emissions reductions that are enforceable as a practical matter are included in the netting analysis.

[5] Superphosphoric acid emissions based on production rate times MACT emissions standard; baseline emissions = 187,000 T/yr * 0.0087 lb/T = 0.3 T/yr; current emissions based on new proposed 500,000 T/hr production limit = 500,000 T/yr * 0.0087 lb/T = 2.2 T/yr

5.3 Modeling

The facility has demonstrated compliance to DEQ's satisfaction that emissions from this unit will not cause or significantly contribute to a violation of any ambient air quality standard. Based on review of the information and data submitted with the application and the results of the analyses, DEQ has determined that the modeling analysis: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) appropriately adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations at all receptor locations, when appropriately combined with background concentrations, were below air quality standards. The detailed modeling analysis is included in Appendix B. A summary of the modeling analysis is presented in Tables 5.3 and 5.4.

Table 5.3 SIGNIFICANT IMPACT ANALYSIS RESULTS FOR PM_{10}

Pollutant	Averaging Period	Facility Ambient Impact ($\mu g/m^3$)	Significant Contribution Levels ($\mu g/m^3$)	Exceeds the SCL? (Y or N)
PM_{10}	24-hour	3.4	73	N
	Annual	0.6	26	N

Table 5.4 FULL IMPACT ANALYSIS RESULTS FOR TAPS

Pollutant	Average period	Concentration ($\mu g/m^3$)	AAC($\mu g/m^3$)	Percent of Limit
Fluoride	24-hour	78.5	125	63

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 ..... Permit to Construct Required

The new gyp stack will cause an increase in emissions that requires a permit to construct prior to commencing construction. The project is a minor modification to an existing major source.

The applicability procedures for determining whether or not a modification is a major modification are contained in 40 CFR 52.21. According to § 52.21(a)(2)(iv)(a), a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases – a significant emissions increase, and a significant net emissions increase. The project is not a major modification if it does not cause a significant emissions increase. If the project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase.

The NSR regulated pollutants of concern for the new gyp stack are PM, PM_{10} and fluoride. The PM and PM_{10} emissions are estimated to be 3.1 T/yr and 0.7 T/yr, respectively, which is below the significant increase level for each pollutant. The significant emission rate is 25 T/yr for PM and 15 T/yr for PM_{10}. The fluoride emissions are estimated to be 36.5 T/yr, which exceeds the significant fluoride emission rate of 3 T/yr. Since the project will have a significant emissions increase of fluoride, the second step of determining if the project has a significant net emissions increase must be reviewed.

CPO installed new scrubbers on the phosphoric acid manufacturing process in 2000 to comply with the phosphoric acid manufacturing MACT (40 CFR 63 Subpart AA). This resulted in a 35.7 T/yr fluoride emissions reduction. In addition, Agrium shut down the No. 4 calciner which resulted in 2.1 T/yr fluoride reduction. A net emissions increase includes the emission increases and creditable emission decreases that occur within the period beginning five years prior to the commencement of construction and ending with operation of the new or modified source. CPO currently has a permit modification

pending to increase the allowable throughput of the superphosphoric acid process. The increase would result in a possible fluoride emissions increase of 1.9 T/yr from the superphosphoric acid plant and the emissions were included in the netting analysis. Therefore, the fluoride emission reduction from the phosphoric acid plant scrubber installation that occurred in 2001, and the No. 4 calciner shutdown are creditable emissions decreases, and when combined with the fluoride emissions increases from the new gyp stack and superphosphoric acid plant, result in a small net emissions increase for the project (0.7 T/yr). Since the net emissions change is less than the 3 T/yr significant threshold for fluoride emissions, the project is a minor modification to an existing major source.

IDAPA 58.01.01.300.....Procedures and Requirements for Tier I Operating Permits

Nu-West Industries, Inc.; d.b.a. Agrium Conda Phosphate Operations is a Tier I major facility and has a Tier I operating permit that was recently modified; Tier I Operating Permit No. T1-040308, issued April 8, 2005.

This permit to construct is for a new emissions source that is not currently regulated by the Tier I operating permit. Therefore, no conditions of the permit to construct will contravene any conditions of the Tier I. The Tier I permit expires October 28, 2006, which is less than 3 years from the date of issuance of this permit to construct, so the requirement of the PTC will be included in the Tier I at the time of renewal.

IDAPA 58.01.01.750.....Rules for Control of Fluoride Emissions

The purpose of Sections 750 through 751 is to prevent the emission of fluorides such that the accumulation of fluorine in feed and forage for livestock does not exceed safe limits. Section 751 limits emissions of fluoride from the following phosphate fertilizer plant sources; calciner operation, wet phosphoric acid plant, superphosphoric acid production, diammonium phosphate plants, monoammonium phosphate production, and triple superphosphate production. The gyp stack is not one of the sources regulated by Section 751 so the emissions standard does not apply to this modification.

40 CFR 61, Subpart R.....National Emission Standards for Radon Emissions from Phosphogypsum Stacks

Subpart R applies to each owner or operator of a phosphogypsum stack, and to each person who owns, sells, distributes, or otherwise uses any quantity of phosphogypsum which is produced as a result of wet acid phosphorus production or is removed from any existing phosphogypsum stack. The Subpart applies to the phosphogypsum stacks at CPO. The standard at § 61.202 requires that "Each person who generates phosphogypsum shall place all phosphogypsum in stacks. Phosphogypsum may be removed from a phosphogypsum stack only as expressly provided by this subpart. After a phosphogypsum stack has become an inactive stack, the owner or operator shall assure that the stack does not emit more than 20 pCi/(m^2-sec) (1.9 pCi/(ft^2-sec)) of radon-222 into the air." Therefore, CPO must place the phosphogypsum into one of their two gyp stacks. CPO plans to keep their existing gyp stack active because it has some capacity remaining and will use the gyp stack for water storage. According to § 61.201(a), "*inactive stack* means a stack to which no further routine additions of phosphogypsum will be made and which is no longer used for water management associated with the production of phosphogypsum. If a stack has not been used for either purpose for two years, it is presumed to be inactive." Therefore, the current gyp stack will remain an active stack if it is used for water management associated with phosphogypsum production.

If phosphogypsum is removed from the stack, CPO must comply with the sampling, monitoring, notification and certification requirements of § 61.204 – 207.

5.5 *Permit Conditions Review*

This section of the statement of basis lists the operating, monitoring, and recordkeeping requirements upon which compliance with emissions limits can be determined.

Fluoride emissions limit (Permit Condition 2.3)

A pound per day fluoride emissions limit was included in the permit because the estimated 200 lb/day fluoride emissions rate exceeds the screening emission level. The modeled emissions concentration of fluoride is below the acceptable ambient concentration for fluoride. The emission factor for fluoride emissions from the gyp stack is 1.6 pounds fluoride per wetted acre per day. Using this emission factor, limiting the wetted area of the gyp stack to 125 acres will demonstrate compliance with the emissions limit.

An annual fluoride emissions limit for the phosphoric acid plant is included in the permit to make the emissions reduction creditable that resulted from the 2001 installation of scrubbers. Compliance with the annual fluoride emissions limit is demonstrated by multiplying the MACT emissions standard (0.0135 lb-F/T P_2O_5) by the annual phosphoric acid plant P_2O_5 equivalent feed. The MACT requirements included in the Tier I operating permit currently require the facility to monitor and record the tons per hour of P_2O_5 feed to the phosphoric acid plant and the superphosphoric acid plant as well as monitor and record the scrubber pressure drop and liquid flowrate data in 15-minute block averages. The PTC contains a new requirement to record the rolling 12-month P_2O_5 feed rate to determine compliance with the annual fluoride emissions limit.

Reasonable control of fugitive dust (Permit Condition 2.4)

All particulate matter emissions result from material handling operations on the gyp stack that are fugitive sources. Fugitive dust emissions from the west gyp stack are expected to be less than is currently emitted from the existing gyp stack because less material handling will occur.

Radon emissions from phosphogypsum stacks (Permit Condition 2.5)

The only requirement that applies to active phosphogypsum handling at CPO is that phosphogypsum must be placed into a stack. CPO must comply with the requirements of 40 CFR 61, Subpart R if phosphogypsum is removed from the stack and monitor radon emissions from the stack once it becomes inactive.

6. PERMIT FEES

DEQ received a $1,000 PTC application fee (IDAPA 58.01.01.224) from Agrium on May 2, 2005. A PTC processing fee of $1,000 was required because engineering analysis was required for the PTC modification, and the change in emissions associated with this modification is 0 T/yr of a regulated pollutant because the fee calculation does not include fugitive emissions (IDAPA 58.01.01.225). All emissions from the west gyp stack project are fugitive emissions. The $1,000 PTC processing fee was received at DEQ on June 24, 2005. All fees are paid in full.

Agrium is a major facility as defined in IDAPA 58.01.01.008.10. Therefore, Tier I registration fees are applicable in accordance with IDAPA 58.01.01.387. As of May 5, 2004, the current balance due for Tier I fees is $0.00.

Table 6.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0.0	0	0.0
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM_{10}	0.0	0	0.0
VOC	0.0	0	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**0.0**
Fee Due	**$ 1,000.00**		

7. PERMIT REVIEW

7.1 Regional Review of Draft Permit

The draft permit was provided to the region for comment on May 11, 2005. The Pocatello regional office responded on May 12, 2005 with no comments.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommend that Nu-West Industries; dba Agrium Conda Phosphate Operations be issued PTC No. 050312 for the west gyp stack. A public comment period and public hearing were held and no comments were received. The project does not involve PSD requirements.

ZK/sd Permit No. P-050312

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Appendix A

AIRS Information

P-050312

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Nu-West Industries; Agrium
Facility Location: Soda Springs, ID
AIRS Number: 029-00003

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
SO_2	A	A	A				A	A
NO_x	A	A					A	A
CO	A	A					A	A
PM_{10}	A	A					A	A
PT (Particulate)	A	A					A	U
VOC	B	B					B	U
THAP (Total HAPs)	A			Rad	F		A	
			APPLICABLE SUBPART					
			H, Db	R	AA, BB			

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B

Emissions Inventory

P-050312

3.0 EMISSIONS ESTIMATES

Operations at the new gyp stack will generate emissions of fluoride, particulate matter (PM), and particulate matter less than ten microns in diameter (PM10). The new gyp stack will not affect production at the rest of the facility in any manner. It will not trigger increased utilization of any existing emission units or de-bottleneck any emission units. No other production or emission units will be modified as a result of the gyp stack project. Consequently, the sole focus of this emission section and PTC application is on operations, emissions, and ambient air quality consequences of the new gyp stack.

As noted in Section 2, gyp is, and will continue to be, delivered to the gyp stack pond as slurry, and the gyp is allowed to settle. Each of two backhoes will remove settled gyp from the drying cell and place it on the dike and on the interior side of the cell. After some drying (to 25% moisture) the gyp will be worked by a bulldozer, a compactor, and a grader to create the dike and a roadway on the top. A supervisor truck and service truck (pickups) will drive the roadway daily. Table 1 identifies expected vehicle and heavy equipment traffic at the gyp stack.

The pond water contains fluorides in several chemical forms. We assumed an emission factor of 1.0 lb/acre/day, leading to and emission rate of 125 lb/day or 22.8 tons/year of fluoride emissions from the pond at the center of the gyp stack. This emission rate exceeds Idaho's Screening Emission Level for fluoride (0.167 lb/hr, IDAPA 58.01.01.585) indicating that dispersion modeling of fluoride is required.

The emission factor (1.0 lb/acre/day) was extracted from an emissions inventory prepared for the J.R. Simplot facility near Pocatello, Idaho (Simplot's "Don" Plant). The emission factor was accepted by the Department of Environmental Quality (DEQ) in a method to determine compliance with fluoride limitations applicable to the Don Plant and is the basis for a fluoride permit limit in the Don Plant's Title V Tier I Operating Permit.

Once the surfaces have dried, the walls of the gyp stack behave like cement and are assumed not to erode or emit unless disturbed. When disturbed by driving, grading, compacting, etc., fugitive dust is generated. As discussed further below, the implementation of a new operating procedure substantially reduces fugitive dust at the gyp stack because vehicle miles traveled on the gyp stack is expected to decrease to only 5% of current vehicle miles traveled. This change in operations is effectively a very successful fugitive dust control plan – one that Agrium believes is superior to more common efforts to control dust with water sprays.

AP-42 emission factors were used to estimate emission rates of PM10 attributable to the trucks and heavy equipment disturbing the gyp. Summaries of particulate matter (<30 μm) and PM10 (<10 μm) emissions are presented in Table 2 and Table 3, respectively, and are discussed in detail below.

Backhoes. Equation 1 from AP-42 Section 13.2.4.3 (Aggregate Handling and Storage Piles) gives an emission rate for a general "drop" of material:

$$E = k(0.0032)\frac{(U/5)^{1.3}}{(M/2)^{1.4}} \quad (lb/ton)$$

where k is 0.74 for PM and 0.35 for PM10, U is the wind speed (3.4 m/s, the annual average of the non-calm wind speeds), and M is the moisture percentage of the material (40%). CPO estimates that the backhoes will move 1,154 tons of gyp per day, 5 days per week, 52 weeks per year.

Bulldozer and Compactor. We used the equation for bulldozing overburden from AP-42 Table 11.9-1 (Western Surface Coal Mining),

$$E = k\frac{s^a}{M^b} \quad (lb/hr)$$

where (k, a, b) is (5.7, 1.2, 1.3) for PM and (0.75, 1.5, 1.4) for PM10, s is the silt content (5.1%) and M is the moisture (25%). AP-42 Section 13.2.3 (Heavy Construction Operations) Table 13.2.3-1 suggests using the bulldozing entry from Table 11.9-1 for compactors. A single operator runs both the dozer and the compactor, leading to the assumption that each will operate 5 hours per day (one-half of a 10-hour shift), 5 days per week, for 52 weeks per year.

Grader. We used the equation for grading from AP-42 Table 11.9-1 (Western Surface Coal Mining),

$$E = kS^a \quad (lb/VMT)$$

where (k, a) is (0.04, 2.5) for PM and (0.0306, 2) for PM10, and S is the speed in miles/hour (5 mi/hr). An emissions reduction of 50% is assumed due to moisture and routine watering of the roadway. The grader will travel 8 miles per week, operating 3 days per week, for an average of 2.67 miles per day.

Pickup trucks. Equation 1a from AP-42 Section 13.2.2.2 (Unpaved Roads) gives an emission rate for the light-duty trucks driving on the dike:

$$E = k\left(\frac{s}{12}\right)^a\left(\frac{W}{3}\right)^{0.45} \quad (lb/VMT)$$

where k is 4.9 for PM and 1.5 for PM10, a is 0.7 for PM and 0.9 for PM10, s is the silt content of the dike in percent (5.1%), and W is the weight, in tons, of the vehicle (3 tons). An emissions reduction of 50% is assumed due to moisture and routine watering of the roadway. Two pickups each drive 4 miles per day on the dike, 365 days per year, for a total of 2,920 VMT per year.

Table 1. Vehicle and heavy equipment traffic on the dike

Equipment	Rate	Usage	Total Traffic
D-8 Dozer	3000 ft/half-day	260 days/yr	148 VMT
Compactor	3000 ft/half-day	260 days/yr	148 VMT
Grader	8 mi/week	37 weeks/yr	296 VMT
Service Truck	4 mi/day	365 days/yr	1,460 VMT
Supervisor Truck	4 mi/day	365 days/yr	1,460 VMT

Table 2. Particulate matter emissions

Equipment	Emission Rate	Daily Process Rate	Annual Process Rate	Annual Emissions (tons/year)
Backhoes (total)	0.025 lb/dy	1154 ton/dy	260 dy/yr	0.0033
D-8 Dozer	0.72 lb/hr	5 hr/day	260 dy/yr	0.47
Compactor	0.72 lb/hr	5 hr/day	260 dy/yr	0.47
Grader	1.12 lb/VMT	0.11 VMT/hr	296 VMT/yr	0.17
Pickups (total)	1.35 lb/VMT	0.33 VMT/hr	2920 VMT/yr	1.97
			Total PM Emissions:	3.08

Table 3. PM10 emissions

Equipment	Emission Rate	Daily Process Rate	Annual Process Rate	Emission Rate	
				Daily (lb/day)	Annual (tons/yr)
Backhoes (total)	0.012 lb/dy	1154 tons/dy	260 dy/yr	0.012	0.0015
D-8 Dozer	0.095 lb/hr	5 hr/dy	260 dy/yr	0.48	0.062
Compactor	0.095 lb/hr	5 hr/dy	260 dy/yr	0.48	0.062
Grader	0.38 lb/VMT	2.67 VMT/dy	296 VMT/yr	1.02	0.057
Pickups (total)	0.35 lb/VMT	8 VMT/dy	2920 VMT/yr	2.78	0.51
			Total PM10 Emissions:	4.76	0.69

Table 7. Emission Factors for Fluoride

Emis.	Source	Source Description	1997	1998	1999	2000	2001	Applicable Equations	Principle Variables	Source
ER-5	S-Cb-1	North Calciner, lb/hr	0.5	0.5	0.5	0.5	-	Source test	Tons ore to calciner, hrs of operation	Source tests 1997, 1998, 1999, 2000
ER-6	S-Ca-1	#4 Calciner, lb/ton	0.0018	0.0021	0.0054	0.0023	0.0023		Tons of ore fed to calciner	Source tests 1997, 1998, 1999, 2000
ER-8	F-Oc-2	Rock dryer, for north calciner, lb/ton	0.0096	0.0096	0.0096	0.0096	0.0096	AP-42 emission factors	Tons of ore dried	AP 42 Sect. 11.21 (7/93)
ER-11	S-Fa-1, S-Fa-2, S-Fa-3	Granulation Plant, lb/hr	5.29	8.94	0.99	2.25	-			Source tests 1997, 1998, 1999, 2000
			-	-	-	-	0.058	0.058 lb F/t P2O5 feed	Tons P_2O_5 Feed	MACT
ER-12	F-Fb-1, F-Fb-2	Dry Fertilizer Loadout (into trucks), lb/ton	0.002	0.002	0.002	0.002	0.002	AP-42 emission factors	Tons of dry product fertilizer loaded	AP 42 Sect. 8.5.3 (7/93)
ER-13	S-Pb-1	Super Acid Filtration, lb/ton	-	-	-	-	-	Insignificant since source is a "controlled" operation		
			-	-	-	-	0.0032	0.0087 lb F/ton P2O5 feed	Tons P_2O_5 Feed	MACT
ER-17	S-Pa-1	Phosphoric Acid Plant, lb/hr	23.1	20.9	8.6	12.8	-			Source tests 1997, 1998, 1999, 2000
			-	-	-	-	0.0083	0.0135 lb F/ton P2O5 feed	Tons P_2O_5 Feed	MACT
ER-23	F-Fc-1	Dry Product Sizing Transfer (screens), lb/ton	0.002	0.002	0.002	0.002	0.002	AP-42 emission factors	Tons of dry production	AP 42 Sect. 8.5.3 (7/93) - F added
-	Tag No. CP-4535101	Sulfiding Vent Scrubber (H2S), lb/hr	Installed 2001				0.011			Paul Waters, Jacobs Engineering
-	Tag No. CP-4536101	Conditioning Vent Scrubber (F), lb/hr					0.0101			Caustic scrubber, 99.7% efficiency

Table 8. Emission Rates for Fluoride, Before and After MACT (2001)

AOP Identification		1997		1998		1999		2000		2001			
Emis.	Source	Oper.	TPY	Oper.	TPY	Oper.	TPY	Oper.	TPY	Oper.	TPY	Applicable Equations	Principle Variables
ER-5	S-Cb-1	196 Hours	0.05	217 Hours	0.05	146 Hours	0.04	0 Hours	0.00	0 Hours	0.00	EF * Hours / 2000	Tons of ore fed to calciner
ER-6	S-Ca-1	*1095913 Tons*	*0.99*	*1111410 Tons*	1.17	1188789 Tons	3.21	903693 Tons	1.04	969698 Tons	1.12	Source Test EF * Tons / 2000	Tons of ore fed to calciner
ER-8	F-Oc-2	0 Tons	0.0	0 Tons	0.0	0 Tons	0.0	0 Tons	0.0	0 Tons	0.0	EF * tons fed to dryer / 2000	Tons of ore dried
ER-11	S-Fa-1-3	6001 Hours	15.87	5427 Hours	24.26	4781 Hours	2.37	4781 Hours	5.38	-	-	Source Test * hrs/yr	Tons dry product in X hrs
		-	-	-	-	-	-	-		116940	3.4	MACT * tons P205 / 2000	Tons P_2O_5 Feed
ER-12	F-Fb-1, F-Fb-2	331053 Tons	0.33	330289 Tons	0.33	375694 Tons	0.38	307976 Tons	0.31	266356 Tons	0.27	EF* tons / 2000	Tons of dry product fertilizer loaded
ER-13	S-Pb-1	-	-	-	-	-	-	-	-	-		Insignificant since source is a "controlled" operation	
		-	-	-	-	-	-	-		186717 Tons	0.3	MACT * tons P205	Tons P_2O_5 Feed
ER-17	S-Pa-1	8383 Hours	96.9	8313 Hours	86.7	8375 Hours	35.8	6745 Hours	43.2	-	-	Source Test * hrs/yr	
		-	-	-	-	-	-	-		~~954790 Tons~~	~~1.2.4~~	MACT * tons P205-PPA Conditioning scrubber	Tons P_2O_5 Feed
ER-23	F-Fc-1	331053 Tons	0.33	330289 Tons	0.33	375694 Tons	0.38	307976 Tons	0.31	266356 Tons	0.27	DAP plant lbs emis/ton * tons / 2000	Tons of dry production, hrs
CP-4535101		Installed 2001								4198 Hours	0.02	EF * Hrs/yr / 2000	8400 hrs/yr
CP-4536101										5225 Hours	0.03	EF * Hrs/yr / 2000	8400 hrs/yr
TOTAL tons per year			115		113		42		50		~~6.8~~ 9.2		

avg - 46

560,000 Tons

Will accept through put limit to make emissions decrease an Acceptable on an annual basis.

already?

Source ID: 1701	Emission Type: Fug	UTM Easting:	Flow (scfm):
Source: Gypsum Stack Pond	Emission Point: Pond Surface	UTM Northing:	Diameter (ft):
Group ID: 42 IDEQ Form #: 7	Process Group: Impoundments	Base Elevation: 4,448	Temperature (F):
			Release Ht (ft):

Pollutant		Hours	Control Eff.	Utilization Factor (UF)	Adjustment Factor	Lb/Hr	Ton/Yr	Calculated?
Fluorides	Actual:	8,760		365.00 days/yr	1	6.67E+00	2.92E+01	Y
	Maximum:	8,760		365.00 days/yr	1	0.00E+00	0.00E+00	R

VAR1: 160 lb/day VAR2: VAR3: VAR4:

VAR5: VAR6: VAR7:

Remarks: Emission factor extracted from Bechtel inventory: E.F. = (1.6 lbs/acre/day) x 100 acres for actual; maximum referenced to Source 1713.0.

Appendix C

Modeling Review

P-050312

MEMORANDUM

DATE: May 13, 2005

TO: Zach Klotovich, Technical Services Division

THROUGH: Kevin Schilling, Stationary Source Modeling Coordinator, Air Quality Division

FROM: Dustin Holloway, Modeling Analyst, Air Quality Division DH

PROJECT NUMBER: P-050312

SUBJECT: Modeling Review for the Agrium, Inc. Facility near Soda Springs

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1. SUMMARY

Agrium, Inc. (Agrium) submitted air quality dispersion modeling in support of a permit to construct (PTC) application for a new gypsum stack at their Conda Phosphate Operations facility near Soda Springs. The analysis was performed by Geomatrix Consultants, Inc. and includes a significant impact analysis for PM_{10}, and a toxic air pollutant (TAP) analysis for fluoride emissions. The following table summarizes the key assumptions used in the analysis which should be considered when developing the permit.

Table 1.1 KEY ASSUMPTIONS USED IN MODELING ANALYSIS

Assumption	Explanation
The emissions used in the model are the worst case emissions for this source	The emissions rates used in the model were for the gypsum stack while it is at its largest size and the emissions are the greatest. Over time the emissions from this stack will decrease. This analysis results in a conservative estimate of the ambient concentrations from the gypsum stack project.

Based on review of the information and data submitted with the application and the results of the analyses, DEQ has determined that the modeling analysis: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) appropriately adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations at all receptor locations, when appropriately combined with background concentrations, were below stated air quality standards.

2. BACKGROUND INFORMATION

2.1 *Applicable Air Quality Impact Limits*

The Agrium facility is located near Soda Springs in Caribou County. Caribou County is designated attainment or unclassifiable for all criteria air pollutants. The following table summarizes the air quality standards for this area which apply to this project.

Table 2.1 APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels ($\mu g/m^3$)[a, b]	Regulatory Limit ($\mu g/m^3$)[c]	Modeled Value Used[d]
PM_{10}[e]	Annual	1	50[f]	Maximum 1st highest[g]
	24-hour	5	150[h]	Maximum 6th highest[i] Highest 2nd highest[j]
Fluoride	24-hour	N/A	125[f]	Maximum 1st highest[g]

[a] IDAPA 58.01.01.006.93
[b] Micrograms per cubic meter
[c] IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants.
[d] The maximum 1st highest modeled value is always used for significant impact analysis and for all toxic air pollutants.
[e] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f] Never expected to be exceeded in any calendar year.
[g] Concentration at any modeled receptor.
[h] Never expected to be exceeded more than once in any calendar year.
[i] Concentration at any modeled receptor when using five years of meteorological data.
[j] The highest 2nd high is considered to be conservative for five years of meteorological data.

2.2 Background Concentrations

Background concentrations are not necessary for this analysis because impacts of emissions from this project do not exceed the significant contribution levels.

3. ASSESSMENT OF MODELING ANALYSIS

3.1 Modeling Methodology

The submitted analysis included a significant impact analysis for PM_{10} and a TAP increment analysis for fluoride. The following table summarizes the modeling parameters and DEQ's review and determination of those parameters.

Table 3.1 MODELING PARAMETERS

Parameter	What Facility Submitted	DEQ's Review/Determination
Modeling protocol	Facility submitted a protocol	DEQ reviewed the protocol and provided the applicant with comments and recommendations. The submitted analysis adhered to the protocol and DEQ's comments.
Model Selection	ISCST3	ISCST3 is the recommended model for this analysis.
Meteorological Data	1995 and 2000 Soda Springs surface data from Monsanto P4 facility with Salt Lake City upper air data	Although five years of meteorological data is not available, this data is the most representative available for this area.
Model Options	Regulatory default	This is appropriate for this analysis
Land Use	Rural	The area surrounding the facility is undeveloped or rural.
Terrain	Terrain effects were accounted for	Receptor elevations were included and the model was run to account for the effects of both simple and complex terrain.
Building Downwash	Turned off	The only sources in this analysis were area sources and they are located approximately 1.3 kilometers from the nearest buildings.
Receptor Network	10 meter spacing along the fenceline; 25 meter spacing out to 500 meters from the center of the stack; 100 meter spacing out to 2 kilometers; 500 meter spacing out to 5 kilometers	This receptor grid is sufficient to reasonably resolve the maximum concentrations.
Facility Layout	N/A	The facility layout was compared to the submitted facility plot plan to verify accuracy.

3.2 *Emission Rates*

The application contained both a short term and long term PM_{10} analysis. The short term emissions rates used in the model are the average hourly rates over a 24-hour period. The long term emissions rates used in the model are the average hourly rates over an entire year. The fluoride emissions rate used in the model is the maximum hourly rate. The PM_{10} emissions were divided equally amongst each road section around the gypsum stack. The following table summarizes the emissions rates used in the model.

Table 3.2 EMISSION RATES

Source ID	PM_{10} Short Term (lb/hr)	PM_{10} Long Term (lb/hr)	Fluoride (lb/hr)
West Berm Section			
BERMW01	0.0041	0.0033	0.0
BERMW02	0.0041	0.0033	0.0
BERMW03	0.0041	0.0033	0.0
BERMW04	0.0041	0.0033	0.0
BERMW05	0.0041	0.0033	0.0
BERMW06	0.0041	0.0033	0.0
BERMW07	0.0041	0.0033	0.0
BERMW08	0.0041	0.0033	0.0
BERMW09	0.0041	0.0033	0.0
BERMW10	0.0041	0.0033	0.0
BERMW11	0.0041	0.0033	0.0
BERMW12	0.0041	0.0033	0.0
North Berm Section			
BERMN01	0.0041	0.0033	0.0
BERMN02	0.0041	0.0033	0.0
BERMN03	0.0041	0.0033	0.0
BERMN04	0.0041	0.0033	0.0
BERMN05	0.0041	0.0033	0.0
BERMN06	0.0041	0.0033	0.0
BERMN07	0.0041	0.0033	0.0
BERMN08	0.0041	0.0033	0.0
BERMN09	0.0041	0.0033	0.0
BERMN10	0.0041	0.0033	0.0
BERMN11	0.0041	0.0033	0.0
BERMN12	0.0041	0.0033	0.0

Table 3.2 EMISSION RATES

Source ID	PM_{10} Short Term (lb/hr)	PM_{10} Long Term (lb/hr)	Fluoride (lb/hr)
East Berm Section			
BERME01	0.0041	0.0033	0.0
BERME02	0.0041	0.0033	0.0
BERME03	0.0041	0.0033	0.0
BERME04	0.0041	0.0033	0.0
BERME05	0.0041	0.0033	0.0
BERME06	0.0041	0.0033	0.0
BERME07	0.0041	0.0033	0.0
BERME08	0.0041	0.0033	0.0
BERME09	0.0041	0.0033	0.0
BERME10	0.0041	0.0033	0.0
BERME11	0.0041	0.0033	0.0
BERME12	0.0041	0.0033	0.0
South Berm Section			
BERMS01	0.0041	0.0033	0.0
BERMS02	0.0041	0.0033	0.0
BERMS03	0.0041	0.0033	0.0
BERMS04	0.0041	0.0033	0.0
BERMS05	0.0041	0.0033	0.0
BERMS06	0.0041	0.0033	0.0
BERMS07	0.0041	0.0033	0.0
BERMS08	0.0041	0.0033	0.0
BERMS09	0.0041	0.0033	0.0
BERMS10	0.0041	0.0033	0.0
BERMS11	0.0041	0.0033	0.0
BERMS12	0.0041	0.0033	0.0
Slurry Pond			
NEWPOND	0.0	0.0	8.33

3.3 *Emission Release Parameters*

The PM_{10} emissions from the gypsum stack are generated by heavy vehicle traffic around the perimeter berm of the gypsum stack. The applicant modeled the gypsum stack in its initial configuration, where the total road area, vehicle miles traveled, and slurry size are at their maximum. The PM_{10} emissions were divided equally into 48 segments along the berm. Each segment was modeled as an area source. This is an appropriate method for modeling the emissions because it uniformly distributes the emissions along the berm. The fluoride emissions are emitted from a slurry within the gypsum stack berm. This area was modeled as a single area source. The following table summarizes the emission release parameters used in the model.

Table 3.3 EMISSION RELEASE PARAMETERS

Stack ID	Easting (m)	Northing (m)	Elevation (m)	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle from North (°)	Vertical Dimension (m)
West Berm Section								
BERMW01	453,942.6	4,733,512.5	1,879.1	3.05	6.1	59.8	0	1
BERMW02	453,942.6	4,733,572.0	1,878.5	3.05	6.1	59.8	0	1
BERMW03	453,942.6	4,733,632.0	1,877.9	3.05	6.1	59.8	0	1
BERMW04	453,942.6	4,733,691.5	1,877.5	3.05	6.1	59.8	0	1
BERMW05	453,942.6	4,733,751.5	1,875.8	3.05	6.1	59.8	0	1
BERMW06	453,942.6	4,733,811.5	1,872.7	3.05	6.1	59.8	0	1
BERMW07	453,942.6	4,733,871.0	1,871.7	3.05	6.1	59.8	0	1
BERMW08	453,942.6	4,733,931.0	1,873.0	3.05	6.1	59.8	0	1
BERMW09	453,942.6	4,733,990.5	1,872.5	3.05	6.1	59.8	0	1
BERMW10	453,942.6	4,734,050.5	1,872.4	3.05	6.1	59.8	0	1
BERMW11	453,942.6	4,734,110.0	1,873.5	3.05	6.1	59.8	0	1
BERMW12	453,942.6	4,734,170.0	1,875.0	3.05	6.1	59.8	0	1
North Berm Section								
BERMN01	453,942.6	4,734,229.5	1,874.3	3.05	59.8	6.1	0	1
BERMN02	454,002.4	4,734,229.5	1,876.2	3.05	59.8	6.1	0	1
BERMN03	454,062.2	4,734,229.5	1,877.6	3.05	59.8	6.1	0	1
BERMN04	454,122.0	4,734,229.5	1,877.6	3.05	59.8	6.1	0	1
BERMN05	454,181.7	4,734,229.5	1,877.6	3.05	59.8	6.1	0	1
BERMN06	454,241.5	4,734,229.5	1,877.6	3.05	59.8	6.1	0	1
BERMN07	454,301.3	4,734,229.5	1,877.6	3.05	59.8	6.1	0	1
BERMN08	454,361.1	4,734,229.5	1,877.6	3.05	59.8	6.1	0	1
BERMN09	454,420.9	4,734,229.5	1,877.6	3.05	59.8	6.1	0	1
BERMN10	454,480.6	4,734,229.5	1,877.6	3.05	59.8	6.1	0	1
BERMN11	454,540.4	4,734,229.5	1,877.6	3.05	59.8	6.1	0	1
BERMN12	454,600.2	4,734,229.5	1,877.8	3.05	59.8	6.1	0	1
East Berm Section								
BERME01	454,660.0	4,733,518.5	1,872.7	3.05	6.1	59.8	0	1
BERME02	454,660.0	4,733,578.0	1,874.0	3.05	6.1	59.8	0	1
BERME03	454,660.0	4,733,638.0	1,875.1	3.05	6.1	59.8	0	1
BERME04	454,660.0	4,733,698.0	1,876.4	3.05	6.1	59.8	0	1
BERME05	454,660.0	4,733,757.5	1,876.4	3.05	6.1	59.8	0	1
BERME06	454,660.0	4,733,817.5	1,876.5	3.05	6.1	59.8	0	1
BERME07	454,660.0	4,733,877.0	1,876.4	3.05	6.1	59.8	0	1
BERME08	454,660.0	4,733,937.0	1,877.2	3.05	6.1	59.8	0	1
BERME09	454,660.0	4,733,996.5	1,876.0	3.05	6.1	59.8	0	1
BERME10	454,660.0	4,734,056.5	1,876.0	3.05	6.1	59.8	0	1
BERME11	454,660.0	4,734,116.0	1,876.6	3.05	6.1	59.8	0	1
BERME12	454,660.0	4,734,176.0	1,877.5	3.05	6.1	59.8	0	1

Table 3.3 EMISSION RELEASE PARAMETERS

Stack ID	Stack ID	Stack ID	Stack ID	Stack ID	Stack ID	Stack ID	Stack ID	Stack ID
South Berm Section								
BERMS01	453,948.7	4,733,512.5	1,879.1	3.05	59.8	6.1	0	1
BERMS02	454,008.5	4,733,512.5	1,878.6	3.05	59.8	6.1	0	1
BERMS03	454,068.3	4,733,512.5	1,878.1	3.05	59.8	6.1	0	1
BERMS04	454,128.1	4,733,512.5	1,875.2	3.05	59.8	6.1	0	1
BERMS05	454,187.8	4,733,512.5	1,871.2	3.05	59.8	6.1	0	1
BERMS06	454,247.6	4,733,512.5	1,871.6	3.05	59.8	6.1	0	1
BERMS07	454,307.4	4,733,512.5	1,871.5	3.05	59.8	6.1	0	1
BERMS08	454,367.2	4,733,512.5	1,877.4	3.05	59.8	6.1	0	1
BERMS09	454,427.0	4,733,512.5	1,877.6	3.05	59.8	6.1	0	1
BERMS10	454,486.7	4,733,512.5	1,877.6	3.05	59.8	6.1	0	1
BERMS11	454,546.5	4,733,512.5	1,875.2	3.05	59.8	6.1	0	1
BERMS12	454,606.3	4,733,512.5	1,872.9	3.05	59.8	6.1	0	1
Slurry Pond								
NEWPOND	453948.7	4733518.5	1878.9	3.05	711.2	711.2	0	0

3.4 Results

3.4.1 Significant Impact Analysis Results

Table 3.4 SIGNIFICANT IMPACT ANALYSIS RESULTS

Pollutant	Averaging Period	Ambient Concentration ($\mu g/m^3$)	Significant Contribution Levels ($\mu g/m^3$)	Exceeds the SCL (Y or N)
PM_{10}	24-hour	3.4	5	N
	Annual	0.6	1	N

3.4.2 Toxic Air Pollutants Results

Table 3.5 TOXIC AIR POLLUTANTS ANALYSIS RESULTS

Pollutant	Averaging Period	Maximum Concentration ($\mu g/m^3$)	AACC ($\mu g/m^3$)	Percent of AACC
Fluoride	24-hour	78.5	125	62.8%

The results of the modeling analysis demonstrate, to DEQ's satisfaction, that the new gypsum stack will not cause or significantly contribute to a violation of any ambient air quality standard or TAP increment.